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WATER LAW AND WATER RIGHTS: RECENT DEVELOPMENTS AND IMPLICATIONS FOR SOUTH CAROLINA

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WATER LAW AND WATER RIGHTS: RECENT DEVELOPMENTS AND IMPLICATIONS FOR SOUTH CAROLINA

by

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INTRODUCTION

Garrett Hardin coined the phrase "tragedy of the commons" to describe what happens to a commonly owned resource for which property rights are not clearly defined.[1] His example was a common grazing land, but it applies equally well to underground oil pools, air, or water. Since all--or a large defined group, in the case of riparian owners--have equal rights, there is no incentive to conserve, but, in fact, an incentive to overuse. Each can gain by using more, and none can gain by using less. The common grazing land will be overgrazed, ultimately rendering it unusable for all who have a common share in access to it. Property rights must be clearly defined in order to avoid such an outcome.

In the eastern United States, the tragedy of the commons in water resource management has been slow to come. Blessed with abundant rainfall, rivers, streams, and groundwater, it is only in the last 40 years that serious conflicts over water rights have become chronic rather than episodic questions. The symptoms of change include:

1. Management of water resources during periods of drought. The drought of the summer of 1986 is a very vivid memory in the Southeast. The earlier drought of 1961-65 also brought some significant changes in water law and policy in the Northeastern states.
2. Maintenance of water quality. Increases in population and industrialization have put pressure on the capacity of streams and lakes to purify themselves of pollutants. Changes in technology have provided a whole new set of pollutants that are increasingly difficult for downstream users to treat adequately so as to protect the quality of water for domestic and recreational users. Groundwater pollution from hazardous waste dumps have attracted considerable attention in South Carolina in the last two years. Saline invasion of freshwater rivers in response to diminished flow, and of underground aquifers along the coast in response to increased extraction of fresh water, are developing as serious water quality issues in coastal areas. While water quality issues are not given major attention in this paper, the quantity of groundwater use cannot be considered apart from the threat that such use poses for its quality.

3. Interbasin transfers and interstate water claims. Economic development often depends on a secure water supply for industrial, commercial, and residential/recreational users. Interstate water claims have been a serious question in the Northeast for many years, particularly in the Delaware River Basin but also along the Connecticut and other major interstate rivers. The Delaware Basin Compact has provided at least an interim solution for some of these conflicts in the Northeast, but it is a harbinger of issues to come. South Carolina shares a major river and its drainage systems with its neighboring state of Georgia, while virtually all of South Carolina state's rivers originate outside the state in North Carolina. Thus, interstate questions of rights and obligations--for quality, for maintenance of flow, and for use during periods of drought--are likely to surface in the near future as issues not simply resolved in the context of the riparian system that we share with our neighbor states to the north and west.
4. A perception that water laws may need to be changed, as evidenced by reviews of existing water law by public bodies and proposed changes in water law in other Eastern riparian states in the last 40 years. This need was summarized by Frank Maloney in a study of the proposed 1970 Water Use Act in Florida as follows:

> "As population growth and technological development in agriculture have made greater demands on eastern water supplies, the problem of maintaining stream flows and groundwater levels has assumed increasing importance. Concern over the adequacy of existing laws in the face of emerging water resource problems has led many executive and legislative study committees to propose new methods of dealing with those problems." [2]

Similar changes in circumstances in other Eastern states have led most of them to reexamine their existing riparian doctrine of water law, and to consider alternative ways of addressing the assignment of water rights and the restrictions

to be placed on those rights. The experiences of other states with similar problems should be instructive as South Carolina faces these issues in coming decades.

Property rights can be defined in either of two ways. The state can assign rights directly to individuals, in which case the responsibility for enforcing such rights and resolving disputes over rights falls to the courts. Alternatively, some central authority can be designated to monitor the use of the property in some fashion. Even if the property rights are retained by the state as they are in the latter case, the use of permits or other allocational devices means that this central authority usually assigns some measure of property rights in the common resource to individuals. It is in one or both of these ways that rights to common property have evolved into individual rights as the pressures of population and industrial uses have made once ample resources into scarce resources. The story of the English commons as recounted by Garrett Hardin is the story of water in the American West, and is rapidly evolving into the story of water in the Eastern riparian states as well. The common property rights of one, two, or three centuries ago have undergone continuous redefinition and modification to create the tangled web of rights and allocations that we observe today in all the riparian states, including South Carolina. It is the purpose of this paper to consider the evolution of water law and water rights as they may enlighten state water policy in South Carolina and prepare us for more intense competition for rights to the use of water in the future.

WHO OWNS THE WATER?

When water is sufficiently abundant so that individuals can use as much as they wish for any purposes that they choose without infringing on the equal right of others to do likewise, there is no need to determine ownership rights. Such a harmonious situation has not existed for some time, even in those Eastern riparian states that are abundantly blessed with rainfall and still relatively thinly populated.

Ownership rights to water are defined in a variety of ways in different cultures. A significant government role in controlling the use of water is common even in those countries that are generally market-oriented and permit extensive private ownership in most other assets or resources. In general, the assignment of ownership rights takes one of two forms. Ownership rights may be tied automatically to ownership of property adjacent to bodies of water or over

underground water sources, as is the case in riparian states. Alternatively, the state may assign rights to the use of water with a hierarchy or rights depending on either the priority in time (prior appropriations) or priority in type of use. In such systems, the government may reserve certain rights in order to enforce certain public values. In its strong form, a riparian system actually offers greater protection for some public values, in that the riparian user is required to return the water to the stream undiminished in quality or quantity. In attenuated form, riparian states also lack a formal process for protecting public values.

Riparian rights may be regarded as one step away from a "blessed state of nature" toward minimal restrictions, namely that one's use of water should not impair that of others. Riparian rights are tied to the landed property of those adjacent to watercourses and streams. The origins of riparian rights are traced variously to English common law and continental European practices, although these rights exist originally in common law and are defined and clarified in case law rather than statutory or constitutional law. Today there are 29 riparian states, but in virtually all these states some modification has been made to the pure and simple riparian definition of rights.

A major attraction of a system of riparian rights is that such a system minimizes the need for an administrative bureaucracy and relies instead on the courts for enforcement. Riparian rights work best when there is limited competition for the use of an abundant supply of water, but not so abundant a supply that all may use as much as they like for whatever purposes they choose without in any way infringing on the same right enjoyed by others. The riparian rights doctrine is inadequate in more arid regions, where the competition for water is more intense and the supply is less certain. In some of the more populous Eastern states, this doctrine has also proved inadequate and has undergone substantial modifications.

One might expect that a more restrictive assignment of property rights, replacing riparianism, would develop in the original riparian states as the pressures of population and economic development intensified competition for a limited water supply, but such has not generally been the case. Instead, riparian doctrine has been patched, mended, altered, and revised so as to fit new and changing situations. Only in the arid Western states, where the scarcity of water relative to demand was apparent from the earliest days of settlement, did water law begin on a different set of premises, loosely grouped under the term prior appropriations. Trelease [3] noted in 1970 that water law seemed to be in a state of

flux around the world, with the most consistent development being the adoption of some of the features of the prior appropriation approach. The specific nature of these two alternative approaches is discussed in a later section of this paper.

Underlying both the riparian doctrine and prior appropriations is the notion that in a democratic, market-oriented economy, the state is not the principal owner of water, but it is the definer and arbiter of private property rights. Thus, the state does not own the water, but it is the responsibility of the state to determine who does own the water, and to what restrictions that ownership is subjected. In addition, there are several elements of public interest in water:

1. The Federal government has long claimed a right to adequate stream flow in navigable waters. The requirement to maintain instream flows inhibits the use of water for other purposes, even in riparian states.
2. Use of water for one purpose can conflict with the use of water for another purpose. While the prior appropriations system provides state agencies to mediate such conflicts, the riparian system does not, except through the courts. Use of water for consumptive purposes can limit the amount available for recreational purposes by lowering the level or flow. Adding pollutants can reduce the usefulness of water to downstream users or, at least, increase their treatment costs. A primary role for government in a market economic system is to provide a means of resolving such conflicting rights.
3. Access to some limited amount of water for consumptive purposes is considered by some to be a basic human right to be protected by government. The quality of that water is also a matter of public health interest; consequently, the use of water as a dumping ground has long been subject to restrictions.
4. The use of water in certain ways influences patterns of economic development. Thus, the assignment of water rights to agriculture in a particular area may inhibit industrial or residential development, or vice versa. Assignment of water rights to particular uses can influence the pattern of development, while assignment of (transferable) water rights to particular persons can allow more flexibility of water use in response to changing circumstances and opportunities.

Thus, the role of the state does not end with the assignment of rights to particular uses, particular individuals, or as attachments to certain real properties.

Economic Issues

The economic perspective on water is that water is a useful and usually scarce commodity to be allocated among competing uses so as to maximize the welfare of society. Water is neither created nor destroyed, so the water rights issue is primarily an allocational rather than a production question (although distribution and treatment systems involve water-related production activities). One group of economists identifies the following criteria for evaluating alternative mechanisms for distributing water or water rights:

1. adequate flexibility (in shifting between uses and places),
2. security of tenure for established users,
3. making users pay the real opportunity cost of water,
4. predictable outcomes of allocation/distribution mechanisms,
5. equity or fairness, assuring minimal water supplies to all and providing compensation from those who lose from a reassignment of rights or reallocation of water, and
6. assurance of protection of public values as water quality and instream flow. [4]

Economists generally encourage the use of market rather than administrative solutions because markets are flexible and, therefore, efficient in allocating (and reallocating) water or other resources to the currently most highly valued uses. A market solution for water rights is certainly a feasible option, but only if water rights are clearly defined and legally transferable. A market system would require a once-for-all assignment of measurable property rights to particular individuals (or to particular land tracts). Those rights could then be bought and sold either separately (as in Western law) or in conjunction with the land to which the water rights are attached. The property rights would have to be specific in terms of the amount of water diverted, the range of uses to which the water could be put, and the obligation (if any) for a return flow of a particular quantity and/or quality.

Elements of a market solution already exist, blended with other nonmarket elements, in both riparian and prior appropriations systems. In riparian

systems, water rights are transferred with the sale of land. In some prior appropriations systems, the owner of a water right can sell it, although, often, (as in California) the transaction requires state approval. In other prior appropriations states, the transfer of water rights requires a public hearing so that third party costs and benefits can be taken into account.

The market solution is not without flaws, however. While markets generally receive high marks for flexibility, they do not perform as well on some of the other criteria.

Security of tenure is important to users because costly, long-term location and investment decisions are based on water rights. Factories, irrigation systems, residential developments, and other costly investments will not be undertaken unless reasonable security of future water supplies is assured. A market system can provide adequate security of tenure for established users as long as property rights are clearly defined initially. The riparian system does not provide equal certainty, since security of tenure depends on changing court interpretation of the nature and extent of riparian rights. A prior appropriations system provides somewhat greater security of tenure for senior appropriators than a riparian system, subject to the vagaries of water availability.

Under existing allocation systems, in areas where water is relatively scarce and competition for water is intense, the users often do not pay the full opportunity cost of the water. The charges that users pay for water services usually reflect the cost of treatment and delivery services, but the opportunity cost of the water itself (its value in the next best alternative use foregone) is usually treated as zero. In states abundantly blessed with rainfall and surface water, an opportunity cost of zero may be correct for most times (except for periods of drought) and most places (except those growing more rapidly than available water supplies will support). In more arid areas, however, water is frequently underpriced, at least in some uses. Average cost pricing encourages use in more remote areas or areas that are more costly to supply. In California, Gardner argues that average cost pricing means that

> ". . . institutional arrangements have seriously misallocated water by diminishing the value of the economic product yielded by water and its complementary inputs far below what would have been attainable under optimal water allocation."[5]

As suggested earlier, market outcomes also fail to reflect third party effects of water use--costs and benefits to other users or would-be users. These effects, or externalities, are a form of market failure that generally calls for state intervention. Externalities can be reduced by clearly defining and assigning property rights and making them transferable, but even clear property rights do not eliminate all third party effects in water use.

Predictable outcomes depend on the clear and unequivocal definition of property rights. One of the most difficult problems is delineating the nature and extent of property rights to water. Property rights in water are complex, as the previous paragraph suggests. Are the rights to a given volume of water, or a percentage of the stream flow, or the flow in excess of some minimal amount, or a given rate of withdrawal from groundwater? Are the rights contingent on the timing, volume, and condition of the return flow in the case of surface water? Are there restrictions on the uses to which the water so diverted may be used? Are the rights contingent on use, and lost through disuse? Are water rights attached to land only transferable with the land, or separable? What restrictions, if any, will the state place on the transfer of water rights? Does the state compete in the market for water rights, or reserve some to itself, or exercise the power of eminent domain to acquire them? Does purchase of a house attached to a water system convey rights to water access of a particular quality and quantity or at a particular price? To be fair, however, problems of predictability can occur (or fail to occur) under either market allocation systems or other methods.

Equity or fairness is the most difficult issue of all; it is a normative or ethical issue of individual rights or personal rights as distinct from property rights. Early doctrines assured all riparian owners a right to a consumptive minimum for household uses, with other uses subject to court decision or negotiation. A certain amount of water is essential for survival, and a slightly larger amount is important for health and sanitation. When water supplies are scarce and must be rationed, there is much criticism of those who would resort to price rationing because it is considered inequitable, i.e., a burden on large and/or low income families relative to others, a burden on certain "socially desirable activities" (nonprofit social service agencies, for example), or a withdrawal of a perceived property right to water at a certain price.

Equity questions can also surface in the assignment or reassignment of property rights as well as in water pricing. A transaction in water or water rights between two private parties may injure third parties who are not directly

involved in the transaction. For example, a farmer could sell water rights to a manufacturer, who would exercise them in such a way as to reduce the recreational usefulness of a body of water, whereas the farmer's activities had not had that effect. In some western (prior appropriations) states, the rights of third parties are acknowledged by requiring that transactions in water or water rights be advertised to permit those who may be injured to express their interests or concerns.

Once water rights have been acquired, either de jure or de facto, and particularly once other decisions are made (to build a factory, establish an irrigation system, or build a shopping center) on the basis of those perceived rights, then any attenuation of those rights, either by reassignment or by changing the price, will raise equity questions. The market is not a particularly strong vehicle for promoting equity, because one's ability to compete in the market place depends on one's income or wealth. However, other allocational systems are not inherently more equitable. It is for this reason that many methods of distributing income, wealth, or property rights use a mixture of market methods and other criteria. This is certainly the case for water rights in practice.

Finally, the market is not an inherently effective vehicle for reflecting public values such as water quality or instream flow, although it can be made to do so. The state can address public values by retaining or purchasing rights to a given instream flow, allowing private users only the water in excess of that flow. Effluent charges or pollution permits have enabled the state to exert its power to ensure water quality. Thus, such social goals are not incompatible with market allocation of water and water rights.

Another important public value is intergenerational equity. The way in which water is used, diverted, or polluted in one generation affects the environment inherited by the next generation. The market is not an effective tool for addressing issues of intergenerational equity; intergenerational concerns are historically the preserve of the state in a democratic market system. Preservation of scenic rivers, forestalling saline invasion of freshwater streams, protecting aquifers from saline invasion near the coast, and preserving endangered species in aquatic environments are water-related public values of an intergenerational nature. In order to address such values in a market economy, the state must reserve rights, restrict rights that it issues, or compete in the marketplace for water rights for purposes other than the immediate highest uses that are identified by bidders in the private market.

Ethical Issues

It is not easy to separate economic from ethical issues. In a context of interbasin transfers, Westra[6] distinguishes between the notion of basic environmental rights enjoyed by all individuals under the protection of law, and the utilitarian aproach in which the environment is a resource to be used subject to cost-benefit calculations. These ethical values are reflected in the earlier discussion of public values, equity, and intergenerational concerns.

Economists most frequently treat ethical questions as externalities. Externalities arise in the use of water because there are third party effects--diminished flow, flooding, or deterioration in quality. Externalities in water use were the first issue raised in this paper in the tragedy of the commons. In general, economists see a role for government in correcting such externalities, or costs imposed by water users on others who cannot effectively assert their rights. However, they would usually see fines, taxes, subsidies, and other market incentives as more efficient vehicles for correcting such externalities than direct regulation.

Many ethical values as well as economic concerns are reflected in the law in general and water law in particular. For example, the overriding federal right to maintain the navigability of navigable streams in the Constitution is a reflection of a public value that embodies both ethical and economic concerns. The preservation of navigability for reasons of commerce and defense also protects such stream flow-dependent values as marine life habitats, recereational opportunities, and scenic vistas for future generations.

Riparian water law is constrained by reasonable use, and prior appropriations by beneficial use. Both of those terms clearly suggest ethical considerations. Neither of these terms is in the vocabulary of an economist, because they neither imply nor embody purely individual cost-benefit calculations, but are instead clearly based on the value judgments of a judge or a state water administrator. Such value judgments are not made in a vacuum. The judge has a body of precedent to guide her, while the administrator usually has legislated priorities to observe in determining beneficial use. Thus do ethical considerations enter into the allocation of water among competing users.

Intergovernmental Considerations

Water law and water rights cannot be considered apart from the political and institutional framework in which they develop. In addition to the influences of

English, Roman, and Spanish law, American water law and water rights developed in a context of a Federalist nation, in which states exercise some degree of sovereignty in certain matters. The relative roles of the states and the federal government in determining rights to water, especially surface water that flows through multiple states, have undergone much evolution and are not yet firmly settled. Since states still retain a primary role in establishing and resolving water rights, the process of resolving interstate disputes over surface water rights has also undergone an evolutionary process.

States and River Basins

Many rivers flow through more than one state; if we include tributaries, nearly all rivers flow through more than one state. The Connecticut is a major river in four New England states; the Savannah originates in tributaries in North Carolina and forms the boundary between South Carolina and Georgia; the Mississippi and its tributaries drain from 14 states to the west and ten states to the east; the Colorado and the Delaware are points of contention between several states, while the flow and the salinity of the Rio Grande is an international issue. Not only do rivers ignore state boundaries, they often form those boundaries, giving rise to disputes about rights to the use of the stream flow.

In Eastern states, the riparian doctrine prevails, giving owners of land on the banks of such rivers correlative rights, although adjudication must be done by a federal court when the riparian co-owners reside in different states. In the west, prior appropriations is the dominant doctrine of water law, but many such claims were inadequately documented in the past and have given rise to disputes both within and between states. Furthermore, some western states recognize riparian rights, some prior appropriations, and some--California and Nebraska--a mixture of the two. Clearly, if a prior appropriations state is upstream from a riparian state, or partially riparian state as occurred between Colorado and Kansas with respect to the Arkansas River, the apportionment of rights becomes even more difficult.[7] On major rivers, interstate conflicts are often further complicated by Federal projects for reclamation, flood control, power generation, and recreation. The Savannah alone is the site of two major federal projects; such projects are even more common along Western rivers.

Interstate conflicts over shared rivers were referred to federal courts in many cases, but in both the east and the west an alternative way of resolving interstate water disputes has been the interstate compact. The constitution makes

provision for such compacts, subject to Congressional approval. Compacts exist in many areas other than water law, most notably in state taxation.

The best known insterstate water compact in the East is that of the Delaware Basin, involving New York, New Jersey, and Pennsylvania. In the West, interstate compacts govern the allocation of the flow in several major rivers, but the best known compact is the one governing the Colorado River, which flows through Colorado, Utah, Arizona, Nevada, and California, with tributaries in two other states and an outlet in the Gulf of California that (creates rights for Mexico to a share of its flow). These compacts may offer some useful insights for future disputes over interstate waters in South Carolina, the Savannah that we share with our neighboring state of Georgia, and the many state rivers whose headwaters are to the North, most of them in North Carolina.

The use of interstate compacts in the West was prompted by three simultaneous interstate water disputes involving the state of Colorado and its neighbors--Kansas in 1910, Wyoming in 1911, and Nebraska in 1913. The first major compact was drafted in 1921 to allocate rights to the Colorado River. It was further complicated by the fact that Mexico had a claim, which was resolved by a 1944 international treaty guaranteeing 1.5 million acre-feet in annual flow to that country. The rest of the flow was allocated by agreement among the various states, with the allocation within states to be carried out in accordance with each state's procedures. Deficiencies in flow are borne proportionally among the compacting states. The entire process of working out the compact took forty-three years to complete. Unfortunately, the annual flow was significantly overestimated, so that conflicts over rights to the waters of the Colorado river continue to mount.

This compact was the model for other compacts to come; by 1973, there were 21 such compacts in effect in the West. While the allocation of the waters of the Colorado continues to make headlines, there have been equally intense disputes involved in interstate compacts for the Rio Grande, the Pecos, and the Columbia. Some efforts to negotiate compacts have failed, often because of residual rights of native Americans; among the compacts that did not come to fruition were the Cheyenne (Wyoming and South Dakota) and Lake Tahoe (California and Nevada).

A relatively recent court decision concerning interstate water allocation has a potentially significant impact to all states. Sporhase v. Nebraska (1983) shook the legal basis for state restrictions on the export of water unless instate users were subjected to similar restrictions. This decision has important implications

for drought management as well as for the sharing of interstate streams and groundwater.

The Federal Role

In addition to resolving interstate water disputes and safeguarding the water rights of native Americans, the federal government has played other roles in the definition and interpretation of water rights. The federal government has historically had the right to maintain the navigability of navigable streams, but beyond that reserved right, the allocation of the streams' surface waters remained subject to state law. The fact that the federal government had and continues to have extensive land holdings in the West further complicates the allocation of water rights in those states, since the federal government, as a property owner, has equal standing with private citizens in seeking to define, protect, and enforce water rights in connection with those lands. Dams for storage, recreation, flood control, and irrigation, built with federal funds, often raise questions of water rights. With three such projects on the Savannah River, the federal government would clearly play a major role in any interstate compact governing the waters of that river.

A long struggle among Congress, federal agencies, and the states over the validity of prior approriations, both as a means of water allocation and as valid claims that the federal government could not override, took place over several decades, culminating in 1978 in a confrontation with the Carter administration. The administration pledged that there would be ". . . no federal preemption of state or private prerogatives in the use or management of water." [8] Two Supreme Court decisions shortly thereafter placed restrictions on the reserved water rights of the federal government, affirming the predominant role of states in water rights.

The federal role in the East in allocation of water is more limited than in the West, because water rights have generated more controversy in the West, more land is federally owned in the West, and because the riparian system was already established in the East at the time that the Constitution was written. However, there remains a significant federal role. In the past, the federal government has been a significant source of funding for local water systems, giving considerable leverage over the allocation of water. South Carolina encounters the federal government on its western border as the owner of three major Corps of Engineers projects on the Savannah and along the coast as a dredger of ports and a guardian of

marshlands. Federal water quality regulations impinge significantly on all states. Thus the primary role in South Carolina's allocation of surface and groundwater rights is still played by the state rather than the federal government.

EXISTING APPROACHES TO DEFINING WATER RIGHTS

While each state's water law is unique, there are two broad categories of water rights--the riparian doctrine, which prevails in Eastern states, and the prior appropriations doctrine, which is used primarily in the arid West. Some eastern states, notably New Jersey and Florida, have modified riparian doctrine to graft elements of a permit system on it, while some western states, honor both riparian and prior appropriations claims.

The Riparian Doctrine

Some form of riparian rights is the prevailing water law for surface waters in all Eastern states except Mississippi. In its pure form, riparian rights--the rights of landowners adjacent to the stream or body of water--are immutable but constrained. They are immutable in that the rights are tied to the land and cannot be revoked for lack of beneficial use. They are constrained by the requirement that the natural flow be maintained, i.e., that each riparian owner was entitled to have a stream flow through his land in its natural condition but that it could not be ". . . materially retarded, diminished, or polluted by others."[9] Such an interpretation allowed ample diversion to ordinary domestic needs, but a strict interpretation would forbid such uses as irrigation, power generation, or mining. Lower riparian owners could limit use by upstream riparian owners, even if the former were not using the water, simply by asserting their riparian rights to undiminished flow.

The natural flow doctrine was soon displaced by the "reasonable use" rule, allowing riparian owners to use water for any beneficial purpose provided that it does not interfere unreasonably with the legitimate uses of other riparians. In this interpretation, rights are correlative or shared among riparians, and disputes over use must be resolved by the courts on a case by case basis.

Riparian water in a strict interpretation may not be used on nonriparian land; thus, cities could not technically use their riparian rights to serve their nonriparian residents without resorting to the power of eminent domain, although this strict interpretation was rarely enforced. In practice, riparianism nowhere exists in its pure form, including England where it originated. The modifications

have varied depending on the climate, the extent of urbanization and industrialization, and other state by state considerations, but most Eastern states have evolved modified forms of riparianism that do not force water law to pursue the semi-random course that would be dictated by a pure case law approach to defining and enforcing water rights.

Evaluation

The chief advantage claimed for riparian rights is flexibility. It is not difficult to establish new water uses on riparian land, although a court test may be required to enforce such uses. Furthermore, since there is no issuance of permits to particular uses for designated quantities and uses, it is easy to change the use or the volume of use under a riparian system.

The chief drawbacks of a riparian system of water law are (1) the uncertainty about the security of one's water supply, which may discourage economic development in some areas, and (2) the prohibition against using surface water on nonriparian lands, which could severely restrict development of otherwise suitable areas for lack of direct access to a water supply. A further drawback is that disputes are resolved by the courts, which lack the experience and continuity to provide any consistent and comprehensive approach to water use. Finally, critics claim that a riparian system can waste a scarce resource by not allowing it to be put to beneficial (but perhaps nonriparian) uses when supplies are adequate.

Riparian systems differ in how they deal with drought, but in general, the courts have shown a preference for nonconsumptive uses (implicit in the original natural flow doctrine), proportional sharing, and prior investments in water-using capital, as opposed to new uses.[10] In general, a riparian system is designed for a region with ample water resources and relatively few competing claims, not for dense populations for whom water is increasingly becoming a scarce commodity.

Prior Appropriations

The prior appropriations system evolved in the American West as an adjunct to mining claims. Although its evolution was more accidental than deliberate, it is well-suited to an arid region with considerable variation in water availability over the course of a year. In its essential form (there are as many variations as there are prior appropriations states), prior appropriations means that the first

person to put the water to a beneficial use has a prior claim. The water need not be riparian; it can be conducted via ditch or pipe to nonriparian land. As the system became formalized, claimants were issued permits that entitled them to the use of a certain volume of water. Thus, prior appropriations states have designated adminstrative agencies that issue permits. In order to do so, they must have adequate data on stream flow; consequently, prior appropriations states often have better data on the availability and actual use of water resources than riparian states.

In prior appropriations states, disputed claims were initially resolved on a basis of "first in time, first in right," providing that the claim had been perfected by putting the water to beneficial use. The claim could be lost with disuse, unlike a riparian right. Newly issued permits, are by definition, junior to those previously established. In some states permits are marketable. Junior appropriators (later in time) lose part or all of their water rights when the stream flow declines. Within this broad framework, a number of variations exist.

Trelease describes the prior appropriations doctrine as a solution to the problem of

> ". . . settlement and development of an empty land, rich in resources, populated by expansion of a relatively wealthy country dedicated to principles of laissez-faire and only recently seriously concerned about protection from the externalities of economic development." [11]

Historical development

The prior appropriations doctrine developed in the West as an adjunct to mining claims and as an ad hoc response to the needs of an arid part of the country as it was settled. Mining claims were established on the basis of first in time, first in right. Rights to scarce water were quickly subjected to the same rule in many Western states. In both cases, to perfect the right (to either a mining claim or a water claim), that right had to be exercised, or put to beneficial use. When the use ceased--the claim ceased, a sharp departure from the riparian doctrine.

Roman law governing water rights divided streams into those that were private and those that were public. The private stream was riparian; the public stream was common property, providing a basis for the state to allocate rights to their use. Elements of Roman law are reflected in the provisions of the U.S.

Constitution reserving to the federal government the right to maintain the navigability of navigable waterways, overriding state water law in such circumstances. The doctrine of prior appropriations, which derives much more directly from Roman law than from English common law, was first clearly laid out in the Colorado constitution, and Coloradans viewed federal approval of their constitution in 1976 as recognition of the validity of the prior appropriations doctrine of water rights.[12] The pure form of prior appropriations in the West is thus known as the Colorado Doctrine.

California and Nebraska recognize both riparian and prior appropriations rights, as did Kansas prior to 1947, when it converted to prior appropriations. Most of the other Western states from Texas to North Dakota west to the Pacific allocate water rights on the basis of prior appropriations. There are, however, distinctive differences among them; they differ in how a claim is perfected, how excess flow is allocated, what agency is authorized to grant claims or permits, and how water is apportioned between senior and junior appropriators. Utah, for example, divides a stream's flow into only two categories, primary and secondary; within each category the water rights more nearly resemble the correlative rights of riparian owners, with a proportional share of the flow assigned to each.

Legislation and court decisions at both the state and federal levels have tested the prior appropriations doctrine and acknowledged the right of the states to allocated water rights in this manner. The critical decision within the state of Colorado was in 1882, *Coffin v. Left Hand Ditch Company*, which affirmed the superiority of prior appropriations rights over presumed riparian rights. At the federal level, the most significant legal decision was the 1907 case of *Kansas vs. Colorado*, which recognized the right of states to allocate water by either riparian or prior appropriations methods. Three Acts of Congress had already sanctioned this method of water allocation:

1. An 1866 act governing the patenting of mining claims that also authorized the same method for allocating water rights if they were recognized by state courts and laws,
2. an 1870 amendment to that act grandfathering existing claims, and
3. the Desert Land Act of 1877, specifying the maximum amount of water to be allocated to tracts of desert land subject to prior appropriation.[13]

Rationale and Critique

The chief advantage of prior appropriations is the degree of certainty it provides, at least for senior appropriators. The quantity of the right is specified, and the quality of the right is determined by the date relative to other appropriators from the same source. Proponents also point to the requirement of beneficial use in order to perfect and retain the right as an attractive feature, so that water is used and water rights are not hoarded for contingent future uses. Where the rights are saleable (with or without attachement to a particular parcel of land), there is added flexibility in use. Its chief drawback is its relative insensitivity to public values, such as recreational use, aesthetics, and maintenance of stream flows for waterlife and other purposes. In addition, this system was not designed to take into account the water needs of cities as they developed, and some serious battles have ensued in the search for safe, dependable urban water supplies. Competition between irrigation by farmers and household water supplies by city dwellers has put the former clearly in the position of "first in time, first in right," but the city dwellers are more numerous, more affluent, and more politically effective.

It is easy to look at this doctrine as a panacea for Eastern states such as South Carolina that are looking for a better method of allocating increasingly scarce water supplies among more and more competing uses and users. Easterners who are attracted to this doctrine should carefully study the battles over water supplies in the West--between states on the same stream (most notably the Colorado), between states and the federal government over the rights attached to federal land and the implications of federal power and reclamation projects on state water rights, between competing users within a state of the same stream or the same aquifer, between commercial and industrial users and recreational users, between irrigation and city household needs.

Groundwater Rights

Ground water presents a different problem from surface water, because it is more difficult to determine and allocate the flow. The amount of ground water is less certain, but because it is easy to extract water at a faster rate than that at which it is replenished, ground water is particularly likely to fall victim to the tragedy of the commons. Nowhere is this more true than in the arid west.

The common law doctrine inherited from England to govern the allocation of groundwater rights was one of absolute ownership. The owner of the land had

absolute rights to the water beneath the surface of that land. In a time of shallow wells spaced far apart this presented few problems, but as wells became closer together, they were tapping a common pool, and the tragedy of the commons was repeated many times. An ironic consequence of such conflicts was the improvement of drilling technology to dig deeper wells, and the discovery that there were indeed defined pools, streams, and other defined underground bodies of water being tapped as a common resource.[14]

Some areas of the West initially used the English common law approach to groundwater rights, as it was already applied in the East. English common law recognized absolute ownership of water beneath the surface of the land one owned. This right is actually stronger than riparian rights to surface waters, because the latter is constrained by the requirement for maintenance of stream flow. Absolute ownership meant that individuals had the right to dig a well on their land and use the water that lay beneath it, ignoring the fact that they were in most cases drawing on a common pool of groundwater. Such a rule is ill-suited to either the arid west or any area where the pressures of demand on existing water supplies are growing rapidly.

Groundwater law is more recent and less firmly developed than surface water law, even in California where the controversy erupted earlier than in some of the more sparsely settled part of the west. In some cases, pressures on existing supplies have led courts to order proportional reductions in use by all users. In other cases, local districts have reduced ground water use through a tax on pumping. In general, groundwater administration has been a local, rather than a state, matter in California.

The most common form of groundwater rights allocation in the prior appropriations states is that developed in New Mexico for the San Andres artesian aquifer. County regulations in 1905 restricted waste pumped water, required capping wells not in use, and charged an annual fee for each well. Spreading statewide, county artesian well boards were established to supervise and regulate groundwater use. Legislation finally extended the doctrine of prior appropriations to the allocation of groundwater where the groundwater was in bodies or strams with reasonably determinate boundaries. Most other prior appropriations states adopted a similar approach to groundwater in the first few decades of this century. Unfortunately, both users and administrators have found the doctrine much more difficult to interpret and enforce in regard to groundwater as opposed to surface water because of the problems of measurement.[15]

In the East, early court cases resulted in pragmatic decisions rather than a clear definition of property rights. Eventually, the correlative rights of riparian owners to surface water were extended to landowners with vertical access to common underground pools, and damages were assessed against those who unduly reduced the availability of underground water to other surface owners with equally valid common law claims. A major issue in the use of groundwater in Eastern coastal states, including South Carolina, is the danger of saline intrusion in coastal areas. Groundwater law continues to evolve in this region as well as in the West.

Public Trust

The public trust doctrine is a specific expression of the right and duty of the government to preserve and protect certain public values in water, even if that means overriding existing water rights already established by the state. The issue was joined in the case of *National Audubon Society v. Superior Court of Alpine County* (1983), in which the City of Los Angeles was deprived of previously issued water permits from the states because the continued diversion would create environmental problems on Mono Lake. This decision considerably increases the uncertainty associated with prior appropriations water rights. At present the doctrine has no particular implications for Eastern states, except to the extent that those states have adopted or consider adopting permit systems.[17]

Evolving Water Rights in Other Countries

In an illuminative survey of water rights in several other countries, Frank Trelease[18] identified the influence of the 100-year-old prior appropriations doctrine abroad together with a variety of adaptations to the culture and circumstances of individual nations. Here are some highlights of his findings:

**In *England*, home of the riparian doctrine, considerable modifications have been made to the original doctrine in response to growing population and industrialization. The major change came in the 1963 Water Resources Act. This act set up an authority for each river basin (an action much easier to undertake in a unitary country than a federal one), and required all users except very minor ones to obtain a permit in order to abstract or impound the water of any inland stream or aquifer. In general, existing rights were honored, except that riparian rights were reformulated in quantitative terms and subject to a use test. Under the new system, the authority collect charges from all water users and pay

damages for losses when licenses must be revoked during periods of water shortage. Permits are not transferable except in connection with land transfers. Thus, while older riparian rights were converted into permits, the British have clearly adopted a modified prior appropriations doctrine for the present and the future.

**In *Chile*, a tangle of Spanish law (itself a blend of Roman and Moorish water law) and Indian custom with elements of French law (reflecting riparian rights) created an unworkable system of conflicting water rights which was resolved by the Water Code of 1951 and the Agrarian Reform Law of 1967. With strong elements of the permit system, this country's water regulations rely neither on priority nor on shared reductions in times of shortage, but on administrative decisions so as to minimize total damage in the shortage area. Permit exchanges are rather cumbersome and difficult. Neither the British nor the Chileans have shown much interest in a market approach to allocating water rights.

**In *Israel*, a very new country with a very long history, water rights reflect both the communal nature of Israeli society and the very arid climate. All waters belong to the state and can only be used with an annual renewable permit for specified uses. During periods of water shortages, there are proportionate reductions among the various users. The appropriation of water rights by the state has been primarily for the purpose of recharging underground aquifers. Thus, like the prior appropriations system, the Israeli water law is based on administrative issuance of permits, but permits are based in priority of desirable use rather than on prior temporal claims.

**Trelease's final group of nations surveyed were three African nations, all former British colonies, which developed their water law as new nations and former colonies in the middle of this century. While *Kenya, Tanzania,* and *Zambia* all have different water rights systems that reflect both different climate and rainfall and different cultural circumstances, they all share the premise that the allocation of water is to be regulated by the state through a permit system. They differ in the length of the permit period and in the method for dealing with shortfalls in water supply, with prior appropriations holding sway in Zambia, equitable sharing in Tanzania, and a combination of the two in Kenya.

EVOLUTION OF SOUTH CAROLINA WATER LAW

The development of South Carolina water law prior to the last few years was discussed in another working paper in this series, and will be briefly summarized

here. Three new developments have taken place in recent times that have had important effects on water rights in South Carolina; the Groundwater Act, the Drought Management Act, and the Interbasin Transfer Act *Riparian Doctrine, 1789-1959.*[19]

Despite the fact that South Carolina is classed as a riparian state, the period up to 1820 can be more accurately characterized as close to a permit system. The legislature became the de facto permit issuing body, as it was repeatedly called upon to resolve conflicts over use of water for mills and fisheries, boating and lumbering. Between 1783 and 1825, 550 petitions came before the General Assembly to resolve water rights disputes.

A period of economic decline in the 1820s coincided with the growing popularity of riparian doctrine in the United States. This new doctrine quickly became popular in the courts, and claims that were prior in time began to be rejected in favor of claims based on riparian rights of landowners.

For more than a century after riparianism found its way into South Carolina water rights, conflict over water rights remained only episodic. Slow growth of population and industry combined with abundant water resources to delay the issue of conflict over water rights on a major scale.

South Carolina was particularly slow to modify this doctrine, primarily because there was so little conflict among water users until well into the twentieth century. While there were some interbasin transfers during the first half of the century, very little challenge arose to riparian rights until the drought of the early 1950s. A study commissioned by the U.S. Soil Conservation Service resulted in a recommendation to the legislature that South Carolina shift to a prior appropriations system modelled on those of Western states. A heated legislative battle ensued, with no success for reformers, and revolution finally gave way to evolution. In the decades that followed, changes in riparianism took place on an ad hoc, piecemeal basis, a mixture of court decisions and specific legislation. The system in place in South Carolina today is still basically riparian, but with substantial modification and numerous exceptions. Some of the most significant exceptions are embodied in three recent legislative acts.

Recent Legislation

The Groundwater Act of 1969 was a major piece of legislation, modelled on a similar North Carolina law, which placed the first legal restrictions on groundwater use in South Carolina. No court cases existed regarding groundwater

in the state prior to that time, so the presumed English doctrine of absolute ownership had not been tested. The 1969 law was a response to fears of declining water levels and saltwater intrusion along the coast. The Water Resources Commission is authorized to designate capacity use areas in which permits are required to withdraw amounts in excess of 100,000 gallons per day. To date, two capacity use areas have been designated, both in coastal areas. The Waccamaw Capacity Use Area includes Horry County, Georgetown County, and part of Marion County. The Low Country Capacity Use Area includes Beaufort, Colleton, and Jasper Counties as well as Edisto Island.

The 1985 Interbasin Transfer Act marked a sharp departure from pure riparianism but at the same time acknowledged a practice that had been going on for more than 50 years in some parts of the states. Since a transfer of water to nonriparian land is not permissable in a pure riparian context, a transfer to an entirely different basin is an even more drastic departure. Yet such transfers, mainly in connection with urban water supplies, have been common practice in this state.

South Carolina has 15 defined river basins. In order to transfer from one of these basins to another, the transferor must acquire a permit from the South Carolina Water Resources Commission, which specifies the amount of the transfer and the use to which it is put. Transfers are constrained by a maintenance of flow requirement in the act, and the permit is valid for twenty years.

The Interbasin Transfer Act represents the first formal action to embody a permit system in South Carolina, although it is much more limited in extent than the permit elements of water law in the riparian Eastern states of Florida and New Jersey. It is too early to evaluate the impact of this law.

A second recent piece of legislation with potentially far-reaching implications and equally drastic modification of riparianism is the 1985 Drought Management Act. This legislation designated drought management areas, defined conditions, and provided the conditions that call for the declaration of drought authority for mandatory curtailment of certain water uses during a drought. While Western water law has long had provisions for dealing with periods of low flow (a predictably recurring condition), riparian states tend to be less equipped to deal with such conditions because of the absence of a permit issuing authority. Thus, the Drought Management Act appears to adopt some features of Western water law, designating the pattern of reduced use and the way in which the water shortfall is shared among users. Like the Interbasin Transfer Act, this law is yet untested, although it came close to implementation in the summer of 1986.

Water Developments in Other Riparian States in Recent Decades

The most interesting developments in Eastern riparian states in recent decades were the Delaware Basin Compact (the only substantial interstate water compact in the East), and the adoption of mixed riparian-permit systems in Florida and New Jersey.

New Jersey's Permit System

In 1973, the National Water Commission recommended that all Eastern riparian states adopt a system of water permits issued by state adminstrative agencies. The only state to adopt a system substantially similar to that proposed was New Jersey.[20] In 1981, New Jersey adopted a considerable change in water rights that incorporated many features of the National Water Commission model, including a system of permits for any diversion of surface or ground water in excess of 100,000 gallons per day, thus abolishing riparian restrictions on water use, state regulation of minimum flows, termination of permits for nonuse, and transferrability of permits. They did not adopt a fixed term for permits nor did they provide a means for dealing with water shortages. Experience with this law should provide useful information for other Eastern riparian states, including South Carolina, in evaluating their options.

The 1972 Florida Water Law

Some of the problems facing Florida are shared, or are likely to be shared in the future, by South Carolina. Water supplies are abundant and lie on or near the surface, and the supply, at the time of the new water law, appeared to be adequate for the near future, although like much of the East, Florida had experienced drought problems in the 1950s. Florida was particularly concerned about waste and unreasonable use, particularly with groundwater, where excessive withdrawals threatened groundwater aquifers with saltwater intrusion.

A 1957 law provided for the capture of surplus flood water (a provision also adopted in the riparian states of Kentucky, Minnesota, North Carolina, Virginia, and Wisconsin) and for control of unreasonable overuse by water regulatory districts. To address waste of fresh water supplies, the State Board of Conservation and local water management districts were allowed to authorize diversions of water to nonriparian land. However, Maloney, [21] who was the principal author of the 1970 act, points out that this provision does not meet the critical concern of such diverters--often municipalities--whose main concern is a guarantee of water rights during periods of low flow or drought.

The 1970 act was designed specifically for Florida, but in fact has possibilities for any riparian state that wishes to modify riparianism while addressing some of its shortcomings. The basic elements of this act were the creation of an administrative structure (basically the one created in the 1957 act, but more detailed) and the regulation of consumptive use under a compulsory permit system. There are four types of permits: agricultural, industrial, municipal, and miscellaneous, providing the foundation of a system of preferences should a shortfall in water supply make rationing necessary. Domestic use is excluded from the regulation. The allocation of permits is subject to both the beneficial use standard of Western water law and the reasonable use requirement of riparian states.

ISSUES AND OPTIONS FOR THE FUTURE IN SOUTH CAROLINA WATER RIGHTS

The most pressing issues in South Carolina water law and water rights have been addressed in recent legislation--the management of groundwater, the allocation of water during drought, and the transfer of water between basins. These three laws correct the principal deficiencies in riparianism while leaving the basic structure intact.

South Carolina can look to its Eastern neighbors to anticipate the kinds of conflicts of water rights that may emerge in the near future. At least two states have adopted a permit system in order to clearly define the previously ambiguous riparian rights. Elements of a permit system can fill in the gap between honoring riparian rights and authorizing interbasin transfers, because neither covers the use of water on nonriparian land in the same drainage basin. The implicit rights and other considerations in granting interbasin transfers will emerge with experience, but there are difficult questions to address in the meantime. An interbasin transfer quantifies the amount of water diverted from riparian owners whose quantitative rights are unspecified.

As demand for water increases in South Carolina, riparianism will come under increasing pressure. Domestic, municipal, agricultural, and industrial water users will require greater certainty in their water supply guarantees, a certainty that cannot be provided under a riparian system. Only permits--not necessarily under a prior appropriations system--can provide the degree of certainty needed to undertake investments in plants, facilities, and equipment that require a guaranteed minimum of water intake. Low population growth and a

slowly growing economy, combined with abundant rainfall, have enabled South Carolina to defer action on this issue longer than most states. Permits, marketable water resources, or a modified prior appropriations system are all possible avenues to explore.

In a state where tourism is a large and growing industry, and in which there is an increasing influx of prosperous retirees, South Carolina must also consider the protection of recreational and scenic values. Water levels, as well as water quality, are important for boaters, fishers, swimmers, hikers, and other recreational users both in transit and in residence. A riparian system does not inherently protect such public rights. South Carolina water law will be under increasing pressure to reflect such concerns. A permit system is one response, but not necessarily the only one. The virtue of riparianism (flexibility) is that it can be accommodated to such concerns through appropriate legislation.

South Carolina has been well-served in the past by a water law tradition that was flexible and minimized the need for a water bureaucracy, a system suited to a state with abundant water resources and relatively modest water needs. As the state grows in population, production, and demands on its water resources, water law will have to adapt to these changing needs and conditions.

Footnotes

[1]Hardin, Garrett, "The Tragedy of the Commons," *Science*, (December 1968), pp. 1243-48.

[2]Maloney, Frank, "A Model Water Use Act for a Riparian State--The Florida Experience," in Johnson and Lewis (eds.), *Contemporary Developments in Water Law,* (Austin: Center for Research in Water Resources, University of Texas, 1970), p. 2.

[3]Trelease, "New Water Laws for Old Countries," in *Contemporary Developments in Water Law* (see note 2), p. 40.

[4]Howe, Charles W., Schurmeier, Dennis R., and Shaw, W. Douglas Jr., "Innovative Approaches to Water Allocation: The Potential for Water Markets," *Water Resources Research*, volume 22, No. 4, (April 1986), pp. 439-445.

[5]Gardner, B. Delworth, "Water Pricing and Rent Seeking in California Agriculture," in Anderson, Terry (ed.), *Water Rights: Scarce Resource Allocation, Bureaucracy, and the Environment,* (San Francisco: Pacific Institute for Public Policy Research, 1983), pp. 83-115.

[6]Westra, Laura, "Ethical Issues in Water Policy," Working paper #091587, Strom Thurmond Institute, Clemson, SC, September 1987.

[7]Dunbar, Robert G., *Forging New Rights in Western Water*, (Lincoln: University of Nebraska Press, 1983), chapter 11.

[8]Ibid., p. 206.

[9]Goldfarb, William, *Water Law*, (Boston: Butterworth Publishers, 1984), p. 7.

[10]Ibid., pp. 8-9.

[11]Trelease, Frank J., "New Water Laws for Old and New Countries," in Johnson, Corwin W. and Lewis, Susan H., eds., *Contemporary Developments in Water Law*, volume IV, (Austin: University of Texas Press, 1970), p. 54.

[12]Dunbar, op. cit., Chapter 11 offers an excellent review of the development of interstate water law in the West.

[13]Ibid., pp. 79-80. Chapters 6 and 7 contain a thorough discussion of the development of the prior appropriations doctrine in the Western states in the late nineteenth century.

[14]Murphy, Earl Finbar, "Regulating Ground Water in Humid Zones," in Johnson, Corwin W. and Lewis, Susan H., eds., *Contemporary Developments in Water Law*, volume IV, (Austin: University of Texas Press, 1970), p. 54.

[15]Ibid., chapters 13 and 14.

[16]Ibid., chapter 15.

[17]Gould, George A., "*Water Law in 1986: Selected Issues,*" *in Water Resources Law; Proceedings of the National Symposiun on Water Resources Law*, American Society of Agricultural Engineers, (December 1986), p. 16.

[18]Trelease, Frank J., "New Water Laws for Old and New Countries," in Johnson, Corwin W. and Lewis, Susan H., eds., *Contemporary Developments in Water Law*, volume IV, (Austin: University of Texas Press, 1970), pp. 40-54.

[19]This section is a brief summary of some of the major points in Steirer, W.F., Jr., "The Evolution of South Carolina Water Law, 1783-1985," Working paper #080687, Strom Thurmond Institute, Clemson, SC, August 1987. This paper was written in conjunction with a grant from the South Carolina Water Resources Commission to Clemson University and The Strom Thurmond Institute.

[20]Goldfarb, op. cit., chapter 3.

[21]Maloney, Frank E., "A Model Water Use Act for a Riparian State--The Florida Experience," in Johnson, Cowin W. and Lewis, Susan H., *Contemporary Developments in Water Law*, volume IV, (Austin: University of Texas Press, 1970), pp.1-26. The proposed law in this article was subsequently adopted with relatively few modifications.

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